

What is claimed is:

1. A distributed analog phase shifter comprising:  
a substrate;  
a coplanar waveguide extended in a line form on the substrate; and  
5 a plurality of ferroelectric capacitors periodically loaded to the coplanar waveguide,

wherein ferroelectric materials of the ferroelectric capacitors are disposed in pattern forms.

10 2. The distributed analog phase shifter of claim 1, wherein the coplanar waveguide is formed of a microstrip line.

15 3. The distributed analog phase shifter of claim 1, wherein the plurality of ferroelectric capacitors comprises:

first electrodes branched from both sides of the coplanar waveguide at predetermined intervals;

second electrodes extended from a ground line to correspond to the first electrodes; and

20 ferroelectric materials formed in pattern forms to overlap with the first electrodes and the second electrodes.

4. The distributed analog phase shifter of claim 3, wherein the ferroelectric materials are formed of barium strontium titanate.

25 5. The distributed analog phase shifter of claim 1, wherein the substrate is formed of one of high-resistance silicon, semi-insulating gallium arsenide, alumina, glass, sapphire, and magnesium oxide.

30 6. A method of manufacturing a distributed analog phase shifter, the method comprising:

depositing a ferroelectric film on a substrate;

etching the ferroelectric film to form ferroelectric patterns;

depositing a metal layer on the substrate on which the ferroelectric patterns are formed; and

5 forming a coplanar waveguide, first electrodes, a ground line, and second electrodes by etching the metal layer,

wherein the first electrodes and the second electrodes are formed such that portions of the first electrodes and second electrodes overlap with the ferroelectric pattern, respectively.

10 7. The method of claim 6, wherein the ferroelectric film is deposited using pulsed laser deposition.

15 8. The method of claim 6, wherein the ferroelectric film is etched using radio frequency ion milling.

9. The method of claim 6, wherein the metal layer is a deposition layer of gold/chrome.

15 10. The method of claim 9, wherein the metal layer is deposited using DC magnetron sputtering.